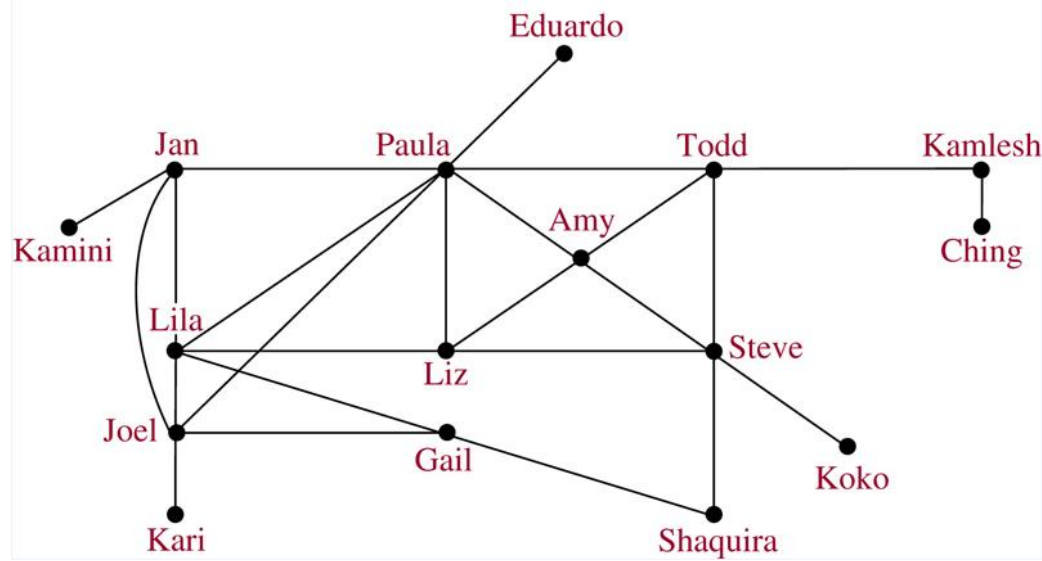


1. If Liz has a party for friends who bring a friend, can Todd met Gail?

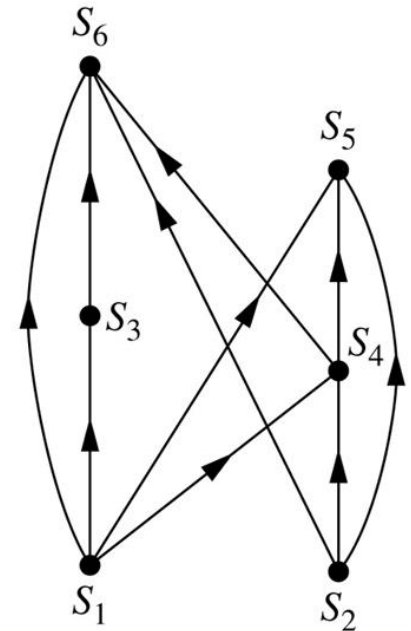


2. Kari?

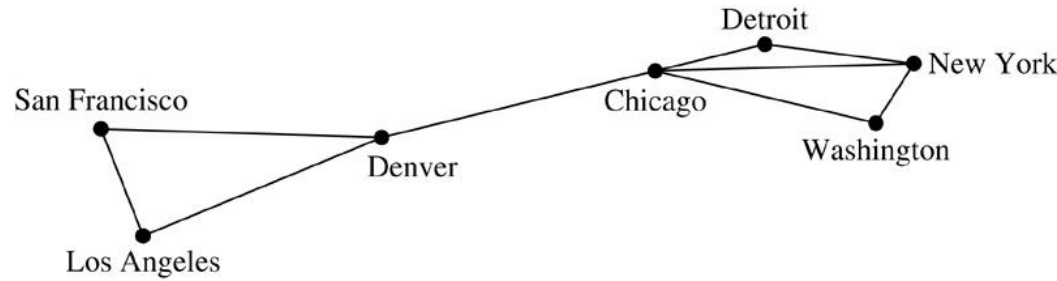
3. Can s_6 be executed before s_3 ?

4. Can s_6 be executed before s_5 ?

- S_1 $a := 0$
- S_2 $b := 1$
- S_3 $c := a + 1$
- S_4 $d := b + a$
- S_5 $e := d + 1$
- S_6 $e := c + d$



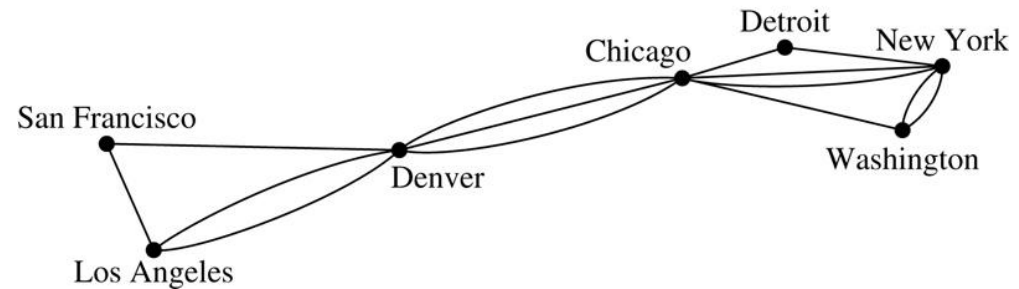
1. Simple graph?



© The McGraw-Hill Companies, Inc. all rights reserved.

2. Simple graph?

3. $\text{deg}(\text{Denver})$?

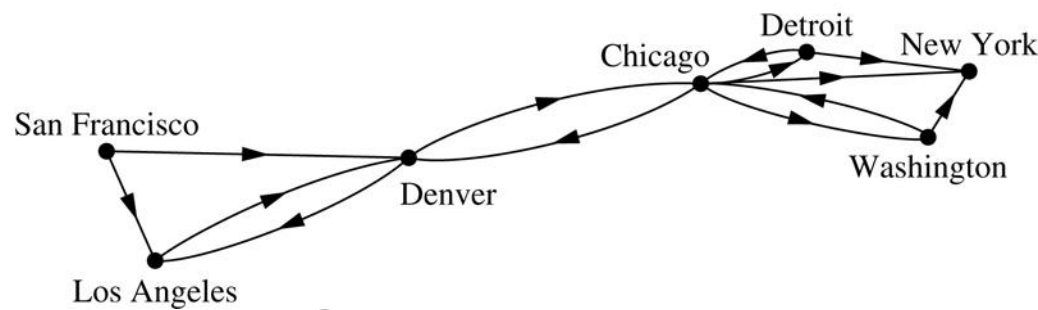


© The McGraw-Hill Companies, Inc. all rights reserved.

4. Simple graph?

5. $\text{deg}^-(\text{Denver})$?

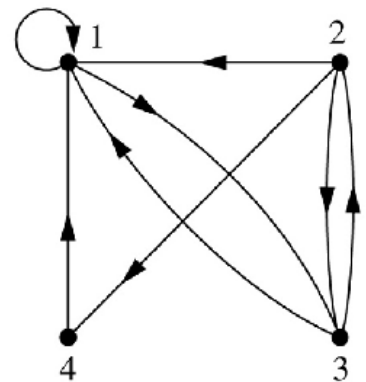
6. $\text{deg}^+(\text{Denver})$?



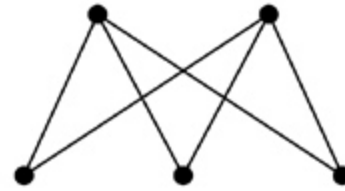
7. Simple graph?

8. $\text{deg}^-(1)$?

9. $\text{deg}^+(1)$?

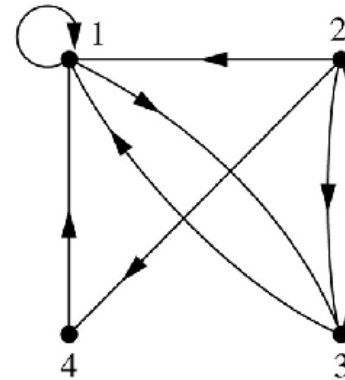


10. Bipartite? Try coloring.



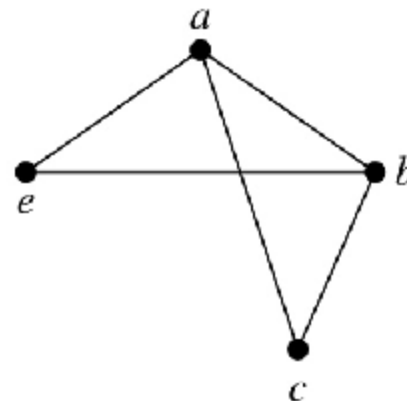
11. Adjacency matrix?

12. Adjacency list?



13. Adjacency matrix?

14. Adjacency list?



15. Isomorphic?

\square	a	b	c	\square	c	b	a
a	0	0	1	c	0	1	1
b	0	0	1	b	1	0	0
c	1	1	0	a	1	0	0

Is:

$a \rightarrow z$

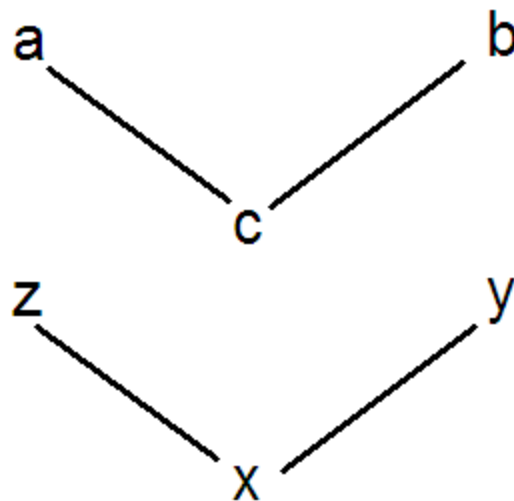
$b \rightarrow y$

$c \rightarrow x$

\square	a	b	c	\square	x	y	z
a	0	0	1	x	0	1	1
b	0	0	1	y	1	0	0
c	1	1	0	z	1	0	0

16. Above one-to-one?

17. Onto?

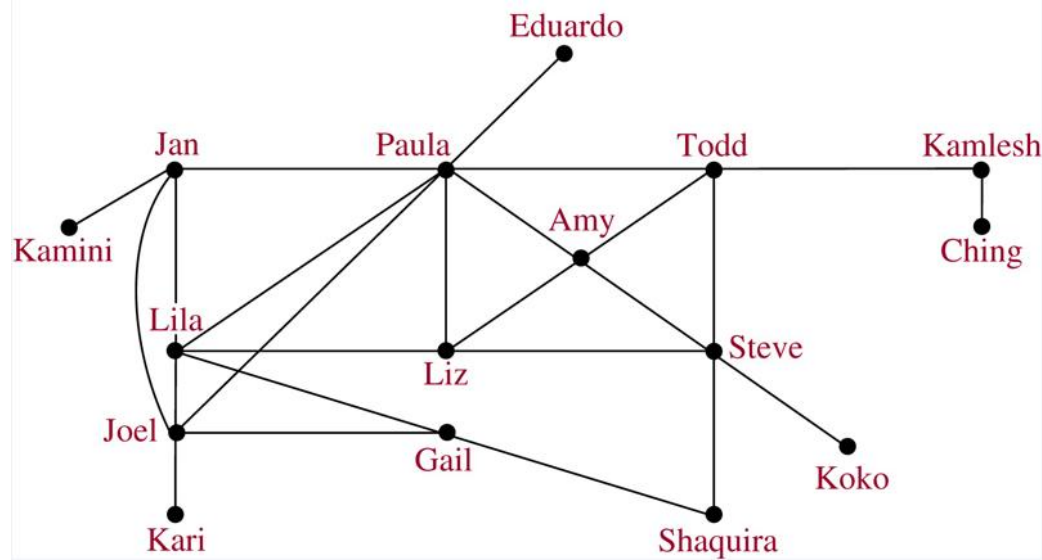


1. If Liz has a party for friends who bring a friend, can Todd met Gail? Yes

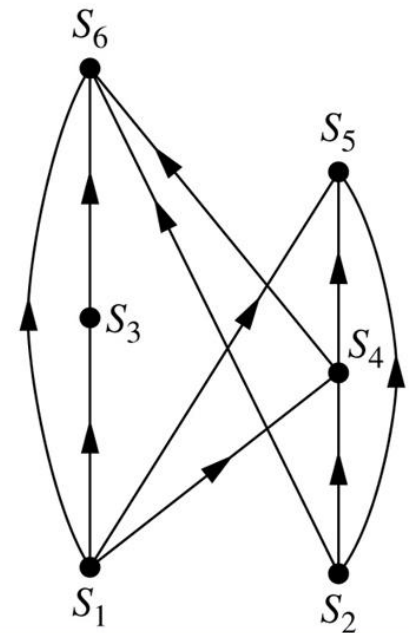
2. Kari? No

3. Can s_6 be executed before s_3 ? No

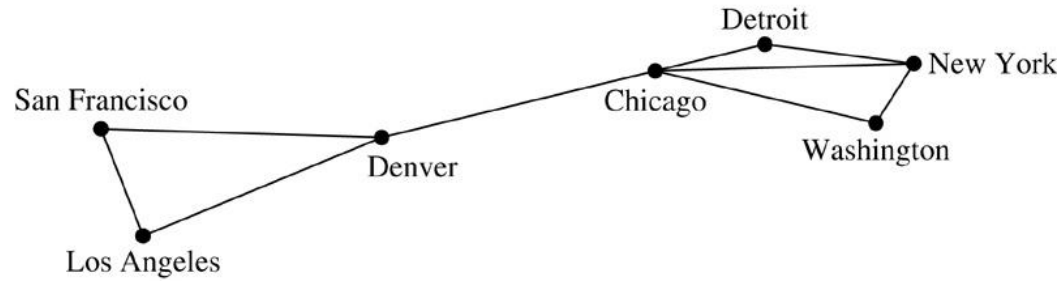
4. Can s_6 be executed before s_5 ? Yes



- S_1 $a := 0$
- S_2 $b := 1$
- S_3 $c := a + 1$
- S_4 $d := b + a$
- S_5 $e := d + 1$
- S_6 $e := c + d$



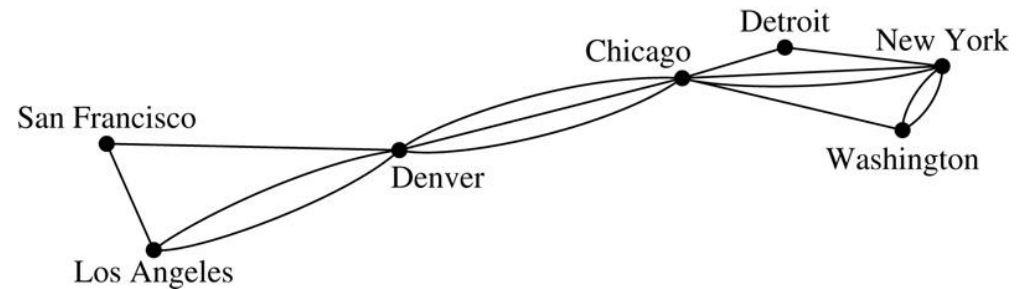
1. Simple graph? Yes



© The McGraw-Hill Companies, Inc. all rights reserved.

2. Simple graph? No

3. $\text{deg}(\text{Denver})$? 6

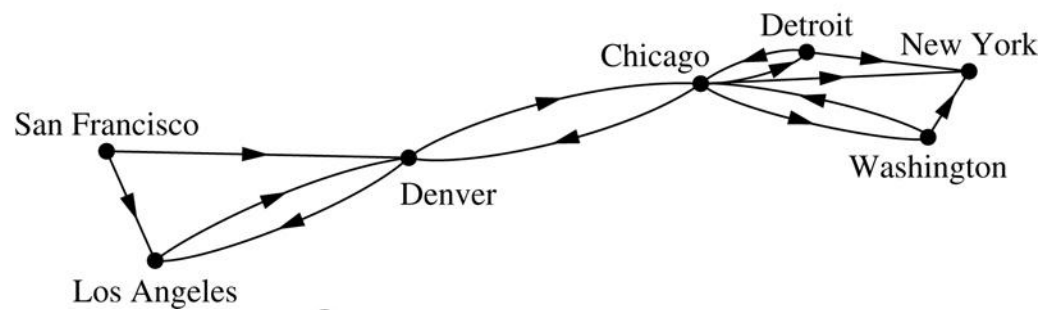


© The McGraw-Hill Companies, Inc. all rights reserved.

4. Simple graph? Yes

5. $\text{deg}^-(\text{Denver})$? 3

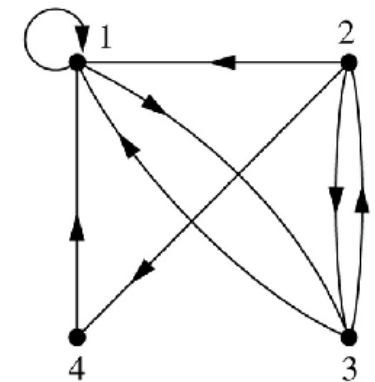
6. $\text{deg}^+(\text{Denver})$? 2



7. Simple graph? No

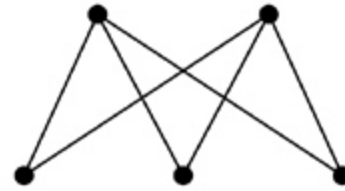
8. $\text{deg}^-(1)$? 4

9. $\text{deg}^+(1)$? 2



10. Bipartite? Try coloring.

Yes



11. Adjacency matrix?

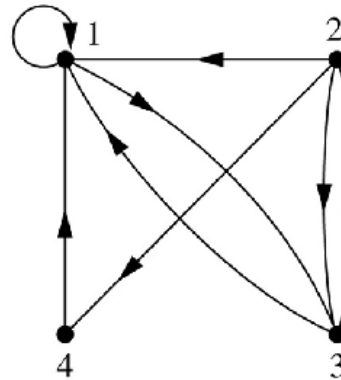
12. Adjacency list?

1 1,3

2 1,3,4

3 1,2

4 1



	1	2	3	4
1	1	0	1	0
2	1	0	1	1
3	1	1	0	0
4	1	0	0	0

13. Adjacency matrix?

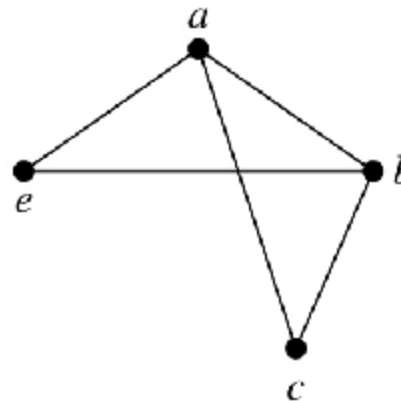
14. Adjacency list?

a b,c,e

b a,c,e

c a,b

e a,b



	a	b	c	e
a	0	1	1	1
b	1	0	1	1
c	1	1	0	0
e	1	1	0	0

15. Isomorphic?

Yes. c and x both degree 2, must have $f(c)=x$

Is: $a \rightarrow z$

$b \rightarrow y$

$c \rightarrow x$

\square	a	b	c
a	0	0	1
b	0	0	1
c	1	1	0

\square	c	b	a
c	0	1	1
b	1	0	0
a	1	0	0

\square	a	b	c
a	0	0	1
b	0	0	1
c	1	1	0

\square	x	y	z
x	0	1	1
y	1	0	0
z	1	0	0

16. One-to-one?

Yes

17. Onto?

Yes

